

Weekly report (2017-9-11 ----- 2017-9-17)

Sept 17th, 2017, 20:40 pm

1. Progress

Table 1. Progress

Tasks	DUE DATE	TASKS IN PROGRESS
Dimensionality reduction	Sept 30 th , 2017	Discuss some accelerating methods for dimensionality reduction.
A master's graduation thesis		Translated a chapter of the paper and added the citations of the thesis opening report

2. Research

2.1 paper reading

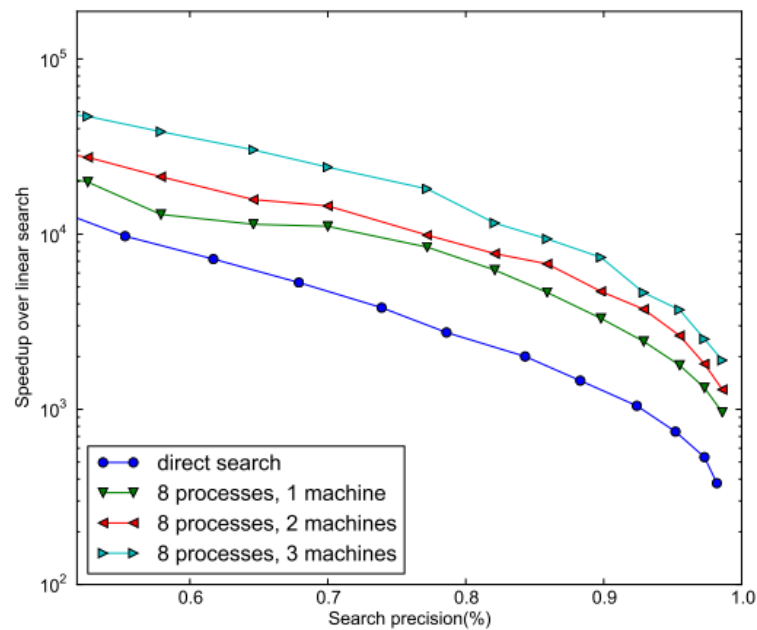
1. An optimal algorithm for approximate nearest neighbor searching fixed dimensions

The authors propose a variation of the k-d tree for approximate search and the use of a priority queue to speed up the search. The method is referred to as "error bound " approximate search.

2. Shape indexing using approximate nearest-neighbour search in high-dimensional spaces

The authors propose the k-d tree search is stopped early after examining a fixed number of leaf nodes, approximating the nearest neighbor search is by limiting the time spent during the search, or "time bound" approximate search. It has a better result than the "error bound" approximate search.

3. Scalable Nearest Neighbor Algorithms for High Dimensional Data



I have read this paper two weeks before, but I didn't get to know about it at that time. This week I read it again and I get some ideas about knn from it, for the reason that we are using knn as one of the most important steps in dimensionality reduction. This paper proposes a new algorithm and made a comparison with the randomized k-d forest. From this paper's description, the result of the distributing nearest neighbor search will have an improvement in performance as the picture shows. So what I suppose is that we may use Map-Reduce to distribute the nearest neighbor matching on a computer cluster, and make a comparison with using GPU and CPU.